**CITY OF DULUTH**
Planning Division

411 W 1st St, Rm 208 * Duluth, Minnesota 55802-1197
Phone: 218/730.5580 Fax: 218/723-3559

# STAFF REPORT

| | | | | | |
|---|---|---|---|---|---|
| **File Number** | PL 13-061 | | **Contact** | Jenn Reed Moses, jmoses@duluthmn.gov | |
| **Application Type** | Shoreland Variance | | **Planning Commission Date** | May 14, 2013 | |
| **Deadline for Action** | **Application Date** | April 5, 2013 | **60 Days** | June 4, 2013 | |
| | **Date Extension Letter Mailed** | April 24, 2013 | **120 Days** | August 3, 2013 | |
| **Location of Subject** | 10701 Becks Road | | | | |
| **Applicant** | WLSSD | | **Contact** | Dianne Mathews, Dianne.Mathews@wlssd.com | |
| **Agent** | | | **Contact** | | |
| **Legal Description** | PID 010-2730-00230 | | | | |
| **Site Visit Date** | May 3, 2013 | | **Sign Notice Date** | April 30, 2013 | |
| **Neighbor Letter Date** | April 26, 2013 | | **Number of Letters Sent** | 5 | |

**Proposal**

WLSSD requests a shoreland variance to replace a sewer line over U.S. Steel Creek. The new line will have four piers instead of two, removing the ones closest to the stream.

| | Current Zoning | Existing Land Use | Future Land Use Map Designation |
|---|---|---|---|
| **Subject** | RR-1 | Residential | Preservation |
| **North** | RR-1 | Railroad, undeveloped | Preservation |
| **South** | RR-1 | Undeveloped | Preservation |
| **East** | RR-1 | Undeveloped | Preservation |
| **West** | RR-1 | Undeveloped | Preservation |

**Summary of Code Requirements (reference section with a brief description):**

50-18.1 Natural Resources Overlay: maintain 75 ft. setback for structures.

Sec. 50-37.9. B - Variances. Procedures. "The Planning Commission shall . . . make a decision on the application based on the criteria in subsections 50-37.9.C through M . . . .

Sec. 50-37.9.C. - General Variance Criteria (paraphrased here): Granting of variances of any kind is limited to situations where, due to characteristics of the applicant's property, enforcement of the ordinance would cause the landowner exceptional practical difficulties or undue hardship. The Planning Commission must find the following for a variance to be granted: a) That they are proposing to use the property in a reasonable manner, b) that the need for relief from the normal regulations is due to circumstances unique to the property and not caused by the landowner, c) that granting the variance will not alter the essential character of the area, d) that granting the variance is consistent with the intent of the UDC and the Comprehensive Plan.

Sec. 50-37.9.L Standards for Variances in Shorelands. No variance shall be granted that compromises the general purposes or intent of Section 50-18.1.D or results in adverse consequences to the environment. Variances shall include a requirement for the applicant to mitigate the impacts of the variance on shoreland areas.

N-1

**Comprehensive Plan Findings (Governing Principle and/or Policies) and Current History (if applicable):**

Governing Principles: Principle #12 - Create efficiencies in delivery of public services.

**Discussion (use numbered or bullet points; summarize and attach department, agency and citizen comments):**

Staff finds that:

1) A sewer line currently runs over this portion of U.S. Steel Creek. The pipe was damaged in the June 2012 flood.

2) The two piers closest to the stream will be removed out of the flood plain, reducing the potential for stream disturbance during construction and the potential for future flood damage.

3) U.S. Steel Creek runs across the entire parcel, and on adjacent parcels, from west to east. Any location for the sewer line will need to cross the creek.

4) The need for repair was created by the June 2012 flood, not by the property owner or applicant.

5) A sewer line is a core part of a city's utilities and is a reasonable use.

6) Because a pipe already exists in this location, replacement will not alter the essential character of the area.

7) Any variances granted in a shoreland require mitigation. WLSSD proposes practices such as sheet piling and trench boxes to minimize disturbance during construction. Stormwater impacts will be minimized using current Best Management Practices and by minimizing construction time. Topsoil and subsoil will be excavated separately, and the stream bank will be fully restored after construction.

8) No City, public, or agency comments were received.

9) Per UDC Sec. 50-37.1.N, approved variances lapse if the project or activity authorized by the permit or variance is not begun within 1 year of the permit date.

**Staff Recommendation (include Planning Commission findings, i.e., recommend to approve):**

Based on the above findings, Staff recommends Planning Commission approve the shoreland variance, subject the following conditions:

1) The project be limited to, constructed, and maintained according to the Application Form for Water/Wetland Projects, dated April 5, 2013, including its attached Project Description.

2) Any alterations to the approved plans that do not alter major elements of the plan may be approved by the Land Use Supervisor without further Planning Commission approval; however, no such administrative approval shall constitute a variance from the provisions of Chapter 50.

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**Attachments (aerial photo with zoning; future land use map; site plan; copies of correspondence)**

# City Planning

PL 13-61
Shoreland Variance
10701 Becks Rd

## Legend

**DuluthStream_cl**
**TROUT_FLAG**
- Trout Stream (GPS)
- Other Stream (GPS)

**Water Distribution System**
- 30 - 60" Water Pipe
- 16 - 24" Water Pipe
- 4 - 6" Water Pipe

**Sanitary Sewer Collection System**
- Sanitary Sewer Collector
- Sanitary Sewer Interceptor
- Sanitary Sewer Forced Main
- Storage Basin
- Pump Station (PS)

**Gas Distribution Main**
- 8" - 16" Gas Pipes
- 4" - 6" Gas Pipes
- 0" - 4" Gas Pipes

**Storm Sewer Collection System**
- Storm Sewer Pipe
- Storm Sewer Catch Basin
- Discharge_Points (D)

**Right-of-Way Type**
- Road or Alley ROW

**Easement Type**
- Utility Easement
- Other Easement
- Zoning (Final)

**Shoreland Overlay Zone**
- Cold Water
- Natural Environment
- General Development



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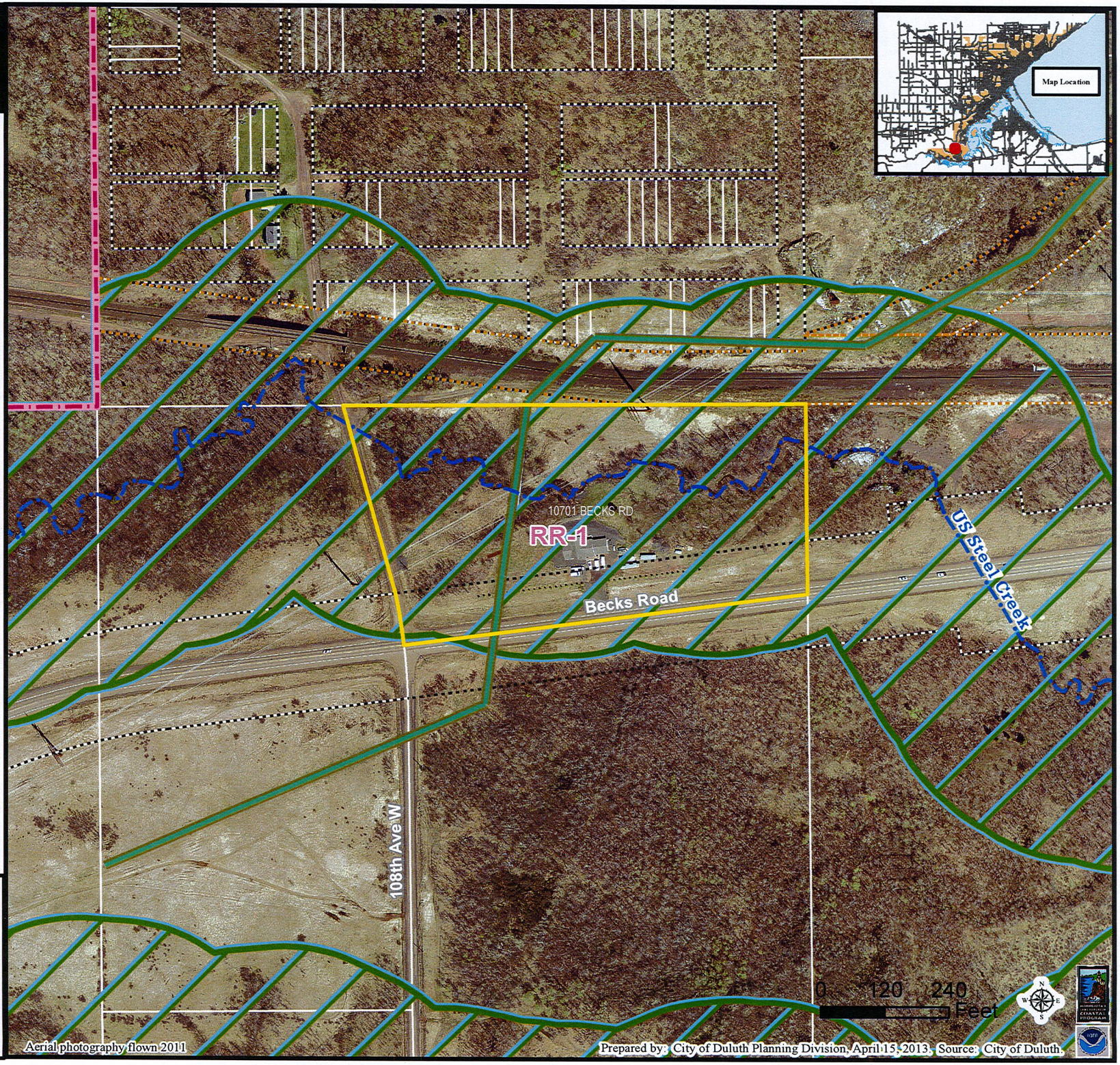

**Project Description**
**Replacement of Section of Sanitary Pipeline, Reconstruction of Pipe Bridge Over U.S. Steel Creek in the City of Duluth, St. Louis County**
**Western Lake Superior Sanitary District (WLSSD)**
**Within Pipeline Sections D050 to D051**

**Project Location and Background**

The Flood of June 2012 damaged Western Lake Superior Sanitary District (WLSSD) Scanlon Interceptor pipe support piers at US Steel Creek crossing located northwest of Becks Rd and 108th Ave W intersection in the City of Duluth, Minnesota. The project is located in Section 3, Township 48 N, and Range 15 E, within a mapped shoreland area of U.S. Steel Creek (Figure 1).

A variance is requested from the UDC Section 50-18.1.D.3 because the proposed work is within 75' of a natural environment stream. The four existing piers of the present structure are within 30' of the stream centerline. Due to steep terrain and budget constraints, it is impractical to construct a replacement structure that would meet the City of Duluth shoreland set back requirements.

A permit (2012-05328-JTF) was previously issued on November 29, 2012 for a temporary emergency repair of the bridge's piers and to make emergency repairs to counteract the damage due to the flood. The temporary repair included erosion control of the eroded streambank within the right of way, installation of temporary emergency shoring of the four piers and wrapping of the pipeline. See attached photos included at the end of this Project Description. This permit application is for permanent repair solution to the flood damaged facilities as presented w/ attached Plans and Specifications - Base Bid (Work related to the Alternate Bids are not part of the permit application and are routine sewer rehabilitation work.) Figure 2 shows the project in relation to the National Wetland Inventory mapped wetlands.

**General Project Description**

The purpose of this planned work is to maintain the pipeline's integrity by removing and replacing a section of the line and its supporting bridge which crosses U.S. Steel Creek. See the recently temporary reinforced piers in photos at the end of this document. Prior to removing the pipeline section and its supporting bridge and piers, a temporary flow diversion line will need to be installed. The flow diversion will be constructed to lie on top of the ground to provide minimal disturbance to vegetation and soil. Plans G-5, G-6, C 101-103 show the plan of the proposed bridge and pipeline replacement.

When the flow diversion is installed and functional, the proposed pipeline replacement section will be drained, disassembled and its bridge piers will be removed. It is proposed that the piers closest to the stream (piers #3 & 4) be cut off flush with the ground and properly disposed. The proposed new bridge will provide a longer span and therefore, the proposed bridge piers will replace the next piers uphill, and out of the path of the stream's floodway. See attached Plan Alternatives for Piers 2 and 5 which will be excavated, removed and replaced. Considered alternatives are discussed below. Galvanized steel bridge beams will be constructed between the new piers to support the replacement pipeline over the stream. When the line has been completely replaced, the temporary flow diversion line will be drained and removed.

At each proposed pier site, the area around the existing pier will be excavated and the soil will be temporarily stockpiled adjacent to the excavation until the new piers can be installed. The project may include the use of sheet piling or trench boxes to contain the soil and provide a safe work excavation. Topsoil and subsoil will be excavated separately and segregated throughout the maintenance work. Following the installation of the new piers the soil will be replaced in reverse order (subsoil first, then



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topsoil). Any unused excess excavated soil will be hauled away to an upland location and properly disposed.

All maintenance work will be along the existing pipeline alignment, within WLSSD's permanent easements. Temporary easements are necessary for workspace. Landowners were notified of the planned maintenance activity and WLSSD's agent notified the City and County highway departments of the planned activities within the roadway easement.

It is anticipated to take approximately 7 days to complete the removal of existing piers, the construction of new piers, and perform the stream bank restoration, weather permitting. Installation of the steel truss bridge and pipe will approximately take an additional 7 to 10 days. All work will be conducted once all applicable permits are obtained.

**Site Access**

Access to the southern piers will be made via an existing west driveway (Property ID 010-2730-00230 from 108th Avenue West) and along the existing powerline corridor. Access to the northern piers will be by an existing maintenance road that runs east from 108th Avenue West through Property ID 010-2730-00230 and parallel to the railroad tracks. Equipment used will likely include a backhoe or similar excavator, a crane, a small loader or skid steer, and trucks to transport personnel, equipment, and materials. See attached Site Plans Sheets G5 and G6 which show the proposed project's access and workspace, along with the proposed location of the temporary flow diversion line to be installed above ground.

**Alternatives Considered**

Two replacement alternatives, besides do nothing, were evaluated for the replacement bridge. See attached Plan Alternative sheets for removal and replacement alternatives. These included Alternative A - replacing the three damaged piers in place; Alternative B - installing a 60 ft bridge with piers outside of the streams floodway and higher up the slope and Doing Nothing.

Alternative A involved removing piers 3, 4, and 5 entirely. This would have involved excavation in the stream. Alternative B involved complete removal of piers 2 and 5, and removal of piers 3 and 4 down to grade. These two alternatives evaluated in the preliminary design and considered by WLSSD. At the end the proposed Alternative B was selected by WLSSD, which provides the least disturbance to the stream channel and the least potential for sediment loss to the stream.

Alternative B provides a longer span between piers that reduces the potential threat of damage from future flooding, which Alternative A would not remove. However, "Do Nothing" is not an option in this case since the unrepaired flood-damaged piers can become more out of alignment over time and will eventually cause sewage leakage and more serious environmental damage.

**Soils and Wetlands**

A review of the National Wetland Inventory (NWI) shows that the project is located within a wetland with steep slopes. See attached plan and profile sheets along with Figure 2. The proposed improvement plans were designed as quickly as possible following the temporary fix. Plans were completed after the delineation season had ended and therefore, no field wetland delineations were performed. For the purpose of this application, it is assumed that the work is within a NWI wetland. Attached photos appear to indicate that the wetland vegetation was primarily focused around the stream channel. No further work is proposed in the stream channel. A temporary containment area will be constructed to contain



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the cuttings of the piers to be removed, as well as to prevent sediment from the proposed excavation entering the stream.

Temporary wetland impacts of an approximately 60 foot by 100 foot area (~6,000 square feet, or ~0.14 acre) of seasonally flooded basin (Type 1) wetland will be required in order to provide workspace to remove the bridge piers. All wetland impacts will be temporary, and are necessary to access and complete the maintenance activities on the pipeline. It is proposed that the woody vegetation within the proposed workspace be cut at the ground level to avoid disturbing the root system and minimizing soil disturbance.

The proposed work will be managed to minimize stormwater impacts through the use of best management practices (BMPs) and by minimizing construction time. The project will incorporate best management practices in accordance with the USACE Regional General Permit (RGP-03) and the MPCA's Construction Stormwater General Permit.

**Erosion and Sediment Control**

Erosion control measures, such as silt fencing, sheet piling and other BMPs will be installed, as needed prior to soil disturbance, in accordance standard conditions of the Regional General Permit and the Minnesota Pollution Control Agency's Construction Stormwater General Permit. The attached site plan (Sheets G-4 to G-6) and the soil and erosion control plan depict the planned location of these measures as they apply to the maintenance activities. The soil and erosion control structures will be inspected and maintained by the Contractor. Figures showing typical installation of erosion control structures are attached.

Any soil tracked onto paved streets will be collected by street sweeping or other equivalent means of sediment collection and properly disposed, as soon as possible, but in no circumstances more than 24 hours after discovery. In addition, soil on roadways will not be swept and/or graded into the road ditch or onto the shoulder.

**Seeding**

Following restoration of the excavation, disturbed areas and the access route with bare soil (not aggregate surfaced), will be seeded and mulched. The seeding will occur immediately after restoration unless the soil is covered in snow. Seeding will be completed by hand-broadcasting the seed onto the soil surface and gently raking it into the ground. The recommended upland seed mix will be Minnesota Department of Transportation (MNDOT) Mixture 250 at the MNDOT recommended rate. Disturbed areas within the wetland will be seeded with MNDOT Mixture 310 at the MNDOT recommended rate.

**Variance Request Need**

A variance from the City of Duluth ordinance UDC Section 50-18.1.D.3 is requested because the proposed work is within 75' of a natural environment stream. The plans show four existing piers within 30' of the stream centerline. Any repair or replacement will be well within the 75' setback requirement. A much longer, more substantial, and more costly bridge would be required to replace the piers outside of the setback requirement.

Due to the steep terrain on both sides of the stream, a longer bridge would require even greater disturbance in the shoreland area than the proposed improvement. More excavation and associated disturbance in the shoreland would be required in order to excavate the existing pipeline and grade to install a longer bridge with piers outside the setback requirements. Therefore, the proposed

improvement offers the best solution that utilizes the replacement of two existing piers that are 30 feet away from the center of the creek and does not disturb the two existing piers adjacent to the creek, thereby reducing the potential for damage from another flood and which minimizes the disturbance to the shoreland area.

The erosion control plan and proposed site restoration provide protection for the stream's water quality and the adjacent shoreland area. The proposed pipeline and bridge replacement will present a temporary disturbance to the shoreland area. Approximately 2 acres of temporary workspace will be needed to facilitate construction of the replacement bridge and pipeline. This area will be restored upon completion of the work. The proposed project will require a MPCA construction stormwater permit. This general permit requires that the disturbed area be restored as quickly as possible. All of these factors will mitigate the temporary disturbance within the shoreland area.


View Looking West at Temporary Fix of Pier 3 Completed in December 2012



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View Looking West at Temporary Fix of Pier 4 Completed in December 2012



8-N

Following Photos are of Flood Damage and Previously Existing Vegetation

North Pier of Pipeline

South Pier of Pipeline



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Pipeline Bridge Piers at Edge of Stream Channel

Pipeline Bridge Piers at Edge of Stream Channel

N-10

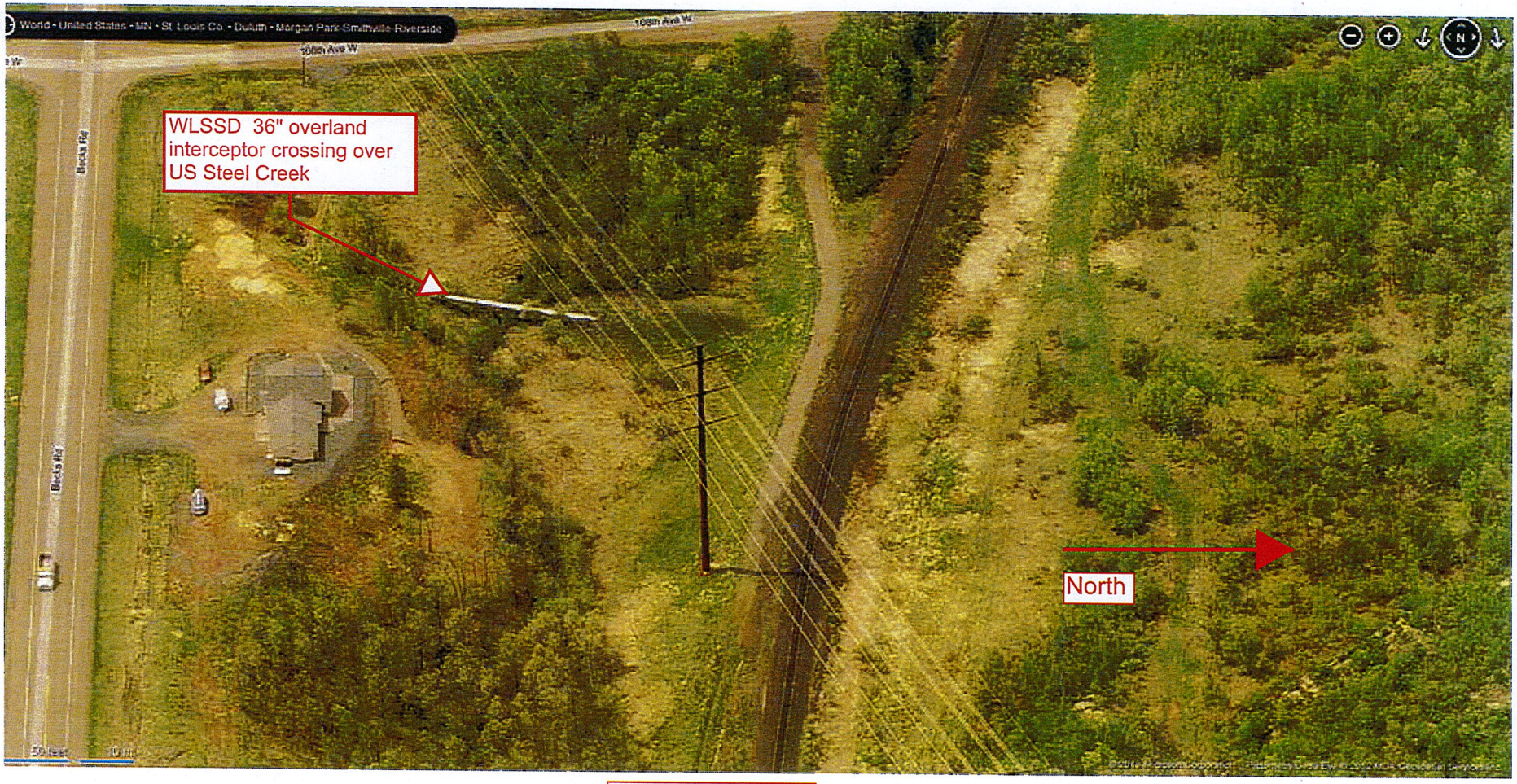
View Looking West of Pipeline and Bridge

View Looking West of Pipeline and Bridge

N-11

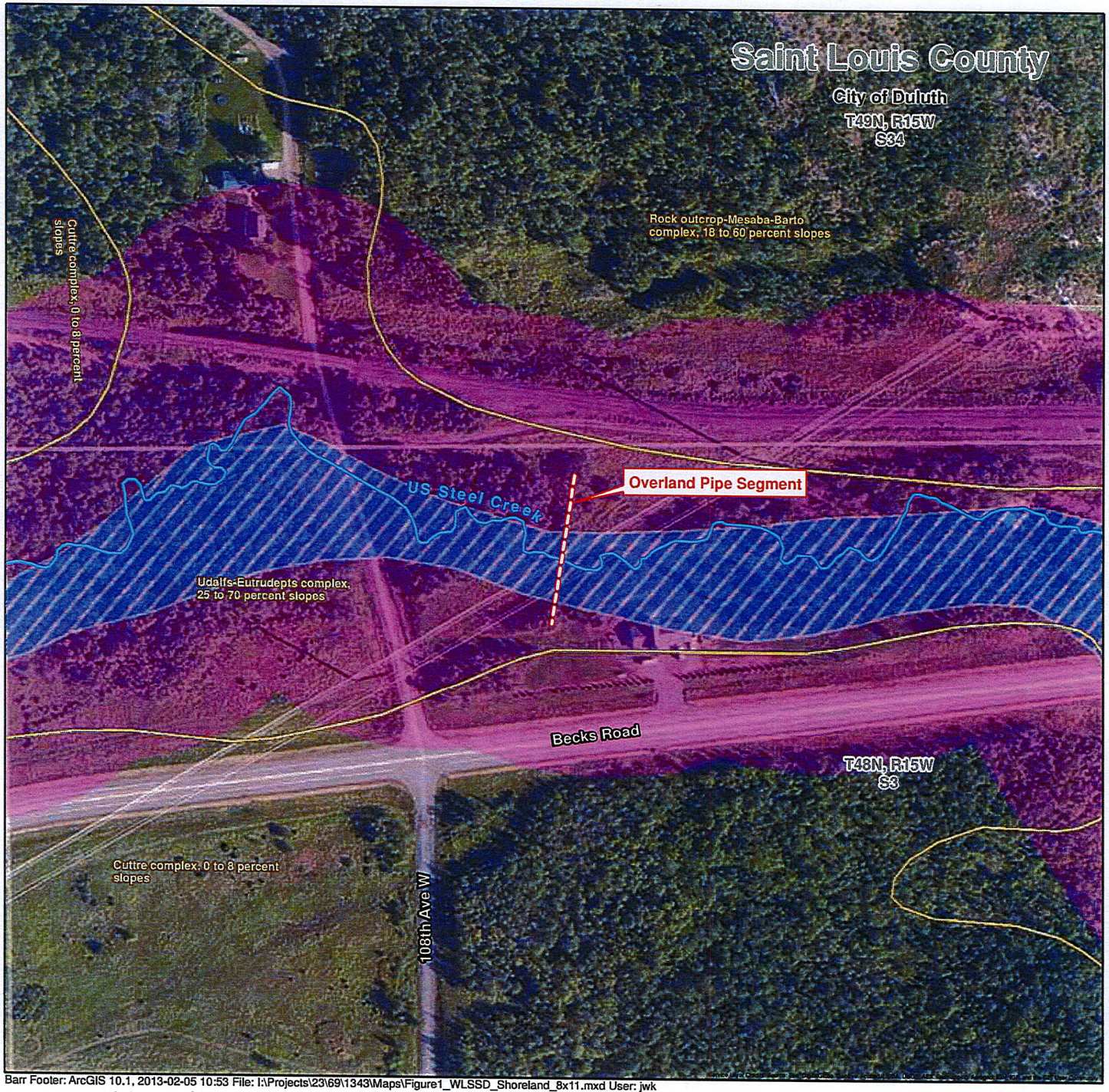

World • United States • MN • St. Louis Co. • Duluth • Morgan Park-Smithville-Riverside
WLSSD 36" overland interceptor crossing over US Steel Creek
North
Bing Aerial Photo

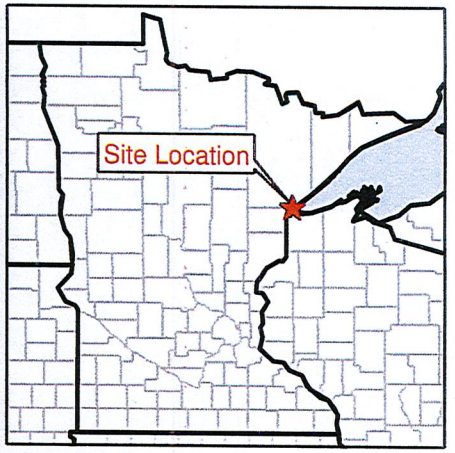
N-12




Bing Aerial Photo

N-13




US Steel Creek
City of Duluth Shoreline Zoning Districts
FEMA Floodplains
Soils

N

0 200 400

Feet

1 Inch = 200 Feet

*ESRI World Imagery Circa July, 2011*

FIGURE 1
**SHORELAND ZONING DISTRICTS**
**OVERLAND PIPE PROJECT**
WLSSD
Duluth, Minnesota

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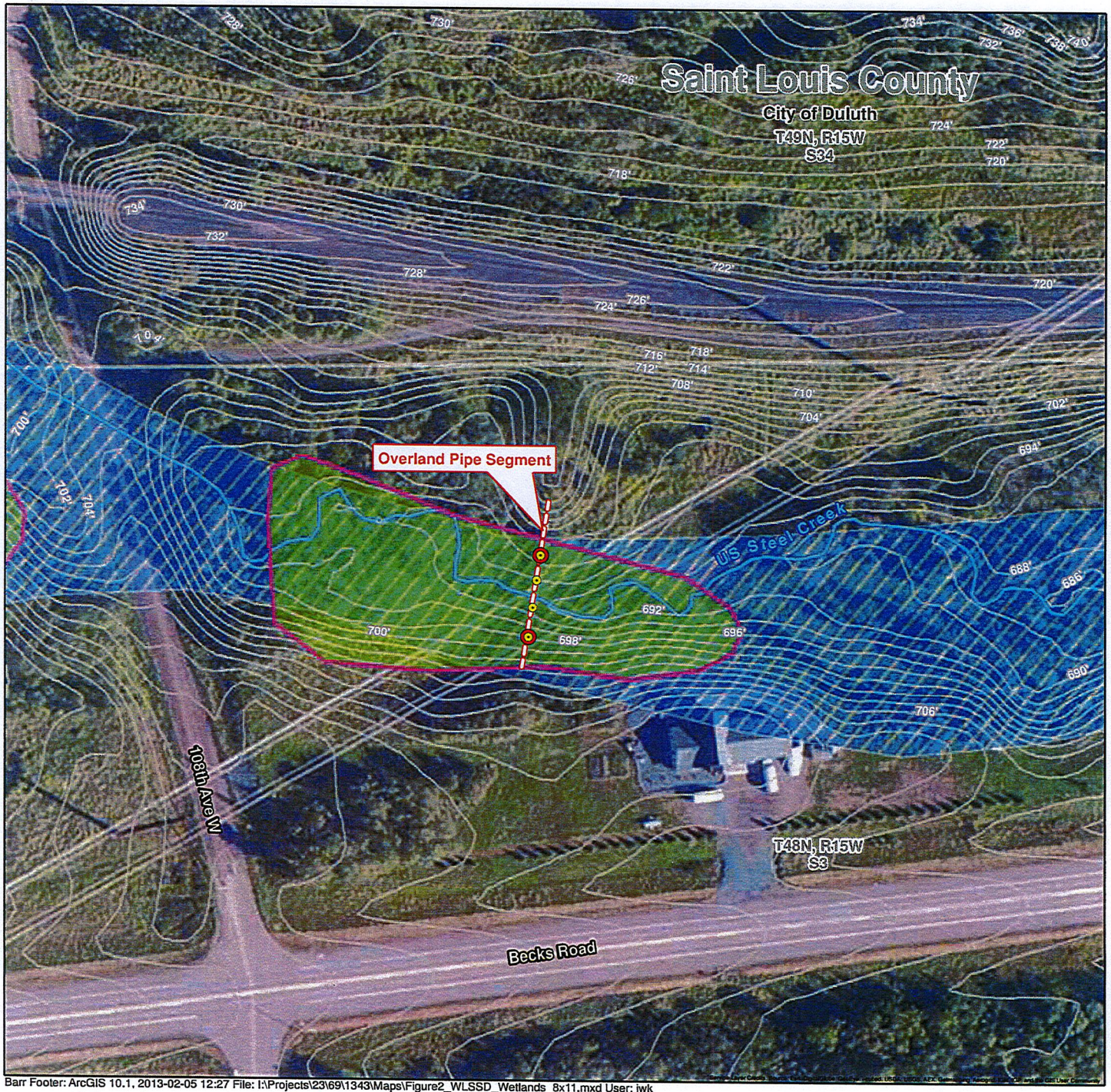


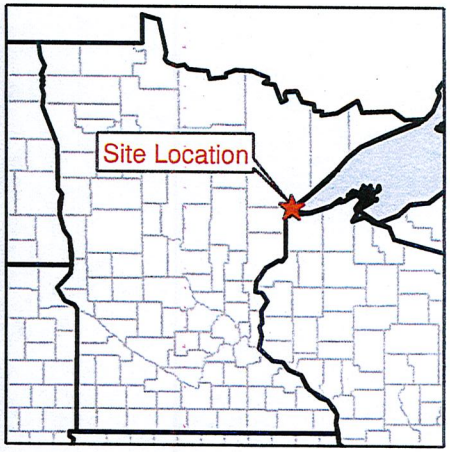


- Overland Pipe Segment
- Existing Piers
- Replacement Piers
- US Steel Creek
- 2-Foot Contours (MNDNR 2009)
- FEMA Floodplains

**Wetlands (NWI)**

- Freshwater Forested/Shrub Wetland

N

0 100 200

Feet

1 Inch = 100 Feet

*ESRI World Imagery Circa July, 2011*

FIGURE 2
**NATIONAL WETLANDS INVENTORY**
**OVERLAND PIPE PROJECT**
WLSSD
Duluth, Minnesota

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Soil Map—St. Louis County, Minnesota, Duluth Part


USDA Natural Resources Conservation Service

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Web Soil Survey
National Cooperative Soil Survey

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Units

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

**Special Line Features**
- Gully
- Short Steep Slope
- Other

**Political Features**
- Cities

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

## MAP INFORMATION

Map Scale: 1:7,980 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

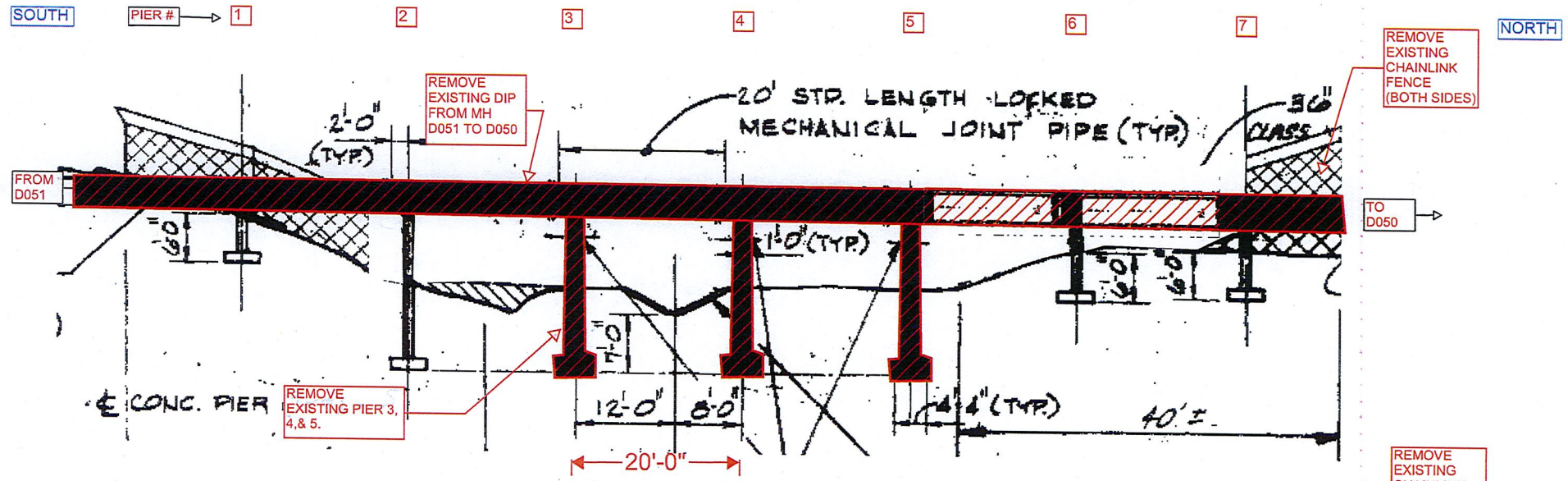
Soil Survey Area: St. Louis County, Minnesota, Duluth Part
Survey Area Data: Version 7, Jul 12, 2012

Date(s) aerial images were photographed: 6/18/2005

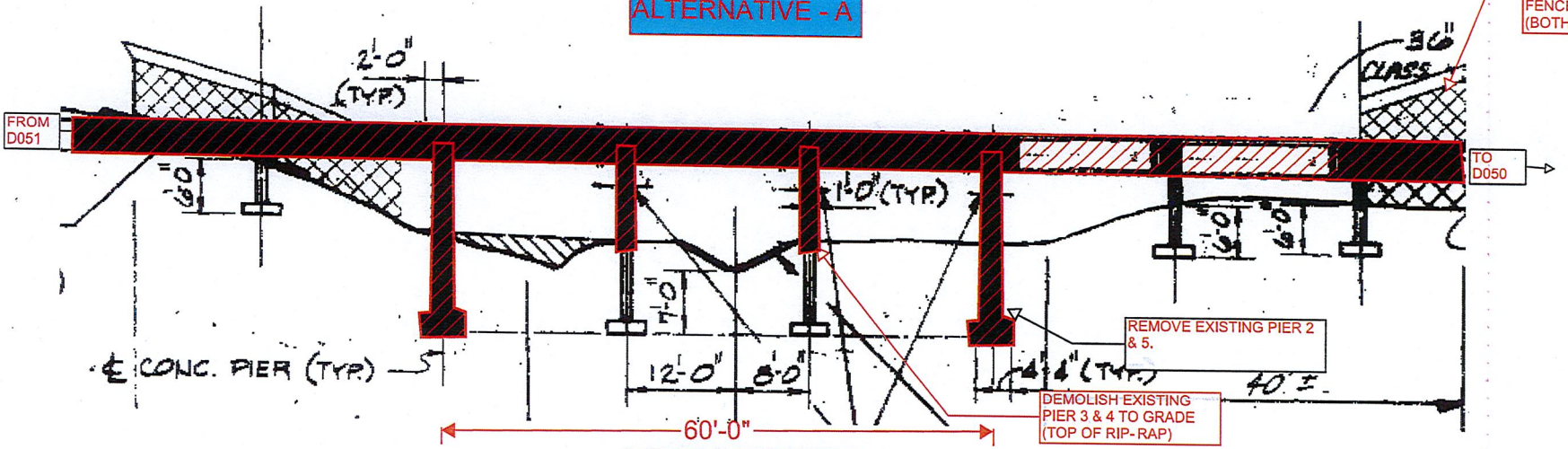
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| St. Louis County, Minnesota, Duluth Part (MN615) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| E3B | Cuttre complex, 0 to 8 percent slopes | 28.7 | 51.5% |
| E23F | Miskoaki-Udifluvents, flooded, complex, 1 to 45 percent slopes | 2.3 | 4.1% |
| F155G | Udalfs-Eutrudepts complex, 25 to 70 percent slopes | 6.8 | 12.2% |
| F160F | Rock outcrop-Mesaba-Barto complex, 18 to 60 percent slopes | 18.0 | 32.3% |
| **Totals for Area of Interest** | | **55.7** | **100.0%** |




ALTERNATIVE - A

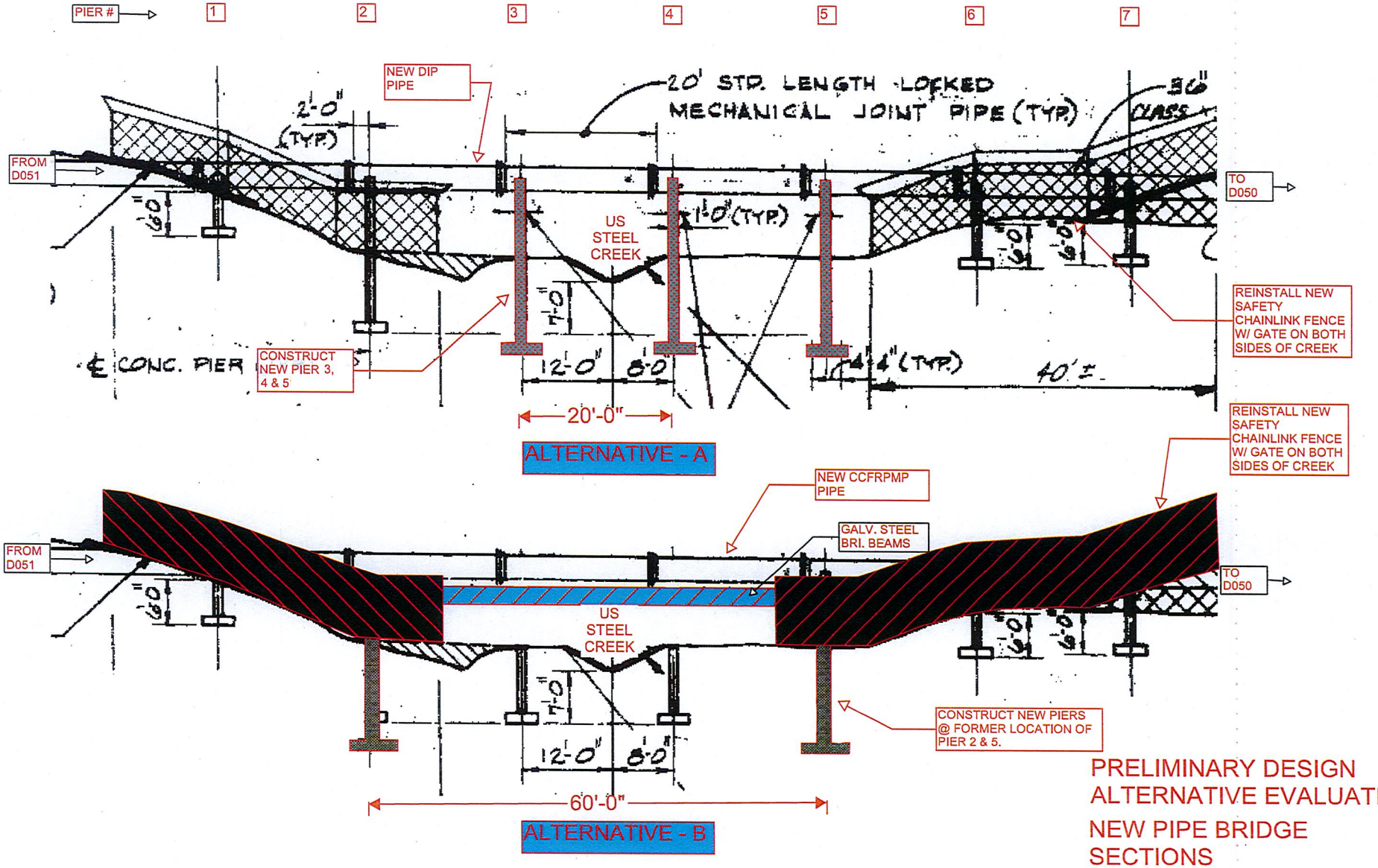



ALTERNATIVE - B

PRELIMINARY DESIGN
ALTERNATIVE EVALUATION

PIPE BRIDGE
DEMOLITION SECTIONS
ALTERNATIVE A & B

N-19




PRELIMINARY DESIGN
ALTERNATIVE EVALUATION

NEW PIPE BRIDGE
SECTIONS
ALTERNATIVE A & B

N-20

# 10701 Becks Road

## Site Photo